

# New California homes

## save energy for future generations

**E**nergy is all around us. It powers our cities, offices and factories, grows, harvests and transports our food, and sends shuttles into space. We reap its benefits every day of the week—whether we realize it or not. One of the many places energy is most useful to us is our home, where it keeps us warm in the winter and cool in the summer, cooks our food, plays our music, runs our computers, TVs and video games, and lights up our lives.

Energy can be a costly commodity. To ensure that you are not spending more than necessary on energy it's important to use it wisely. One of the simplest places to accomplish this is in our homes.

## Energy standards

help keep you comfortable  
and save you dollars

In 1978, California introduced its innovative energy efficiency standards, which established installation criteria, material specifications, and minimum requirements for home insulation, windows, water heating, lighting, ductwork, and heating and cooling systems, as well as appliances.

Since the standards went into effect, builders have designed and built houses that let homeowners enjoy the benefits of a quieter, healthier, and less drafty home. New standards for insulation and windows have helped keep unwanted heat or cold outside. Even our lighting and appliances operate more efficiently than they did years ago, and manufacturers are continually improving their products.

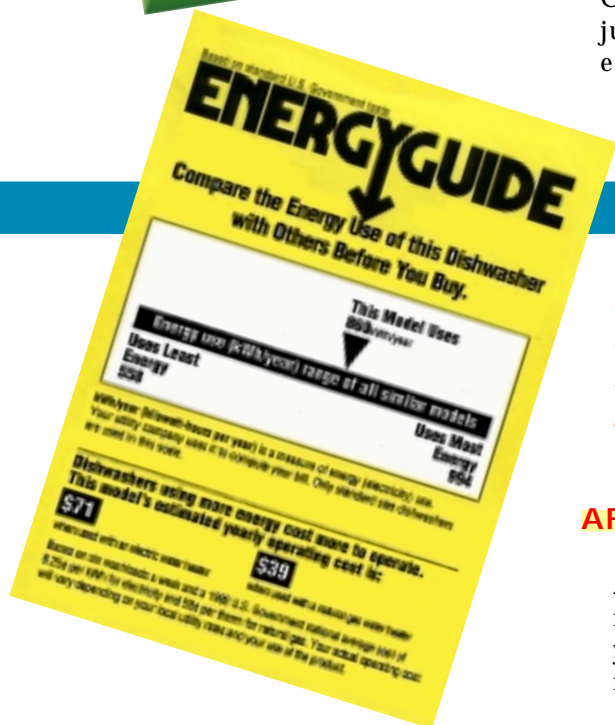


TOTAL HOME ENERGY  
USE BEFORE AND  
AFTER RESIDENTIAL  
ENERGY STANDARDS



**C**alifornia's energy efficiency standards—which are updated periodically—have helped increase the value and safety of our homes, while making them more comfortable and enjoyable places to live, work and play. New California homes also use approximately 52% less energy than before the standards were established, and new homeowners have seen dramatic decreases in their monthly utility bills.

All in all, the energy efficiency standards, and the fact that Californians are using energy more wisely, benefit more than just the homeowner. Saving energy is good for California's economy, for our environment, and for future generations.



## E N E R G Y G L O S S A R Y

*Energy efficiency has a language all its own—and this language may be totally foreign to you. This glossary offers explanations of a few terms you may find helpful in understanding your home's energy saving features.*

### AFUE

**Annual Fuel Utilization Efficiency** - A measure of the heating efficiency of furnaces. The higher the number, the better. You'll find the AFUE on the yellow federal *EnergyGuide* label attached to new heaters. The AFUE for furnaces ranges from 78 to 90+.

### BTU

**British Thermal Unit** - The amount of energy needed to change the temperature of one pound of water by one degree Fahrenheit. In practical terms, it represents a unit of measure for heating or cooling. The amount of energy given off by completely burning one kitchen match is approximately 1 BTU.



### CLIMATE ZONES

There are sixteen geographic regions within California, each having different weather conditions. Your home's energy efficiency requirements are determined by whether your house is in a hot, cold, or mild climate zone.

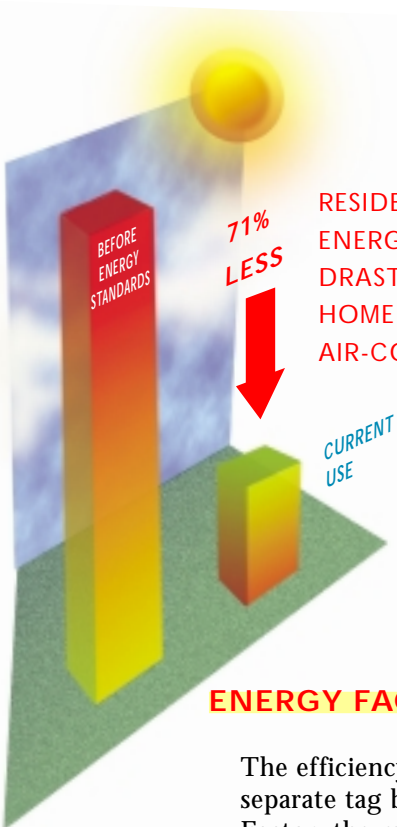
### COOLING CAPACITY

The rating of an air conditioner expressed in BTUs per hour. 12,000 BTUs per hour equals 1 ton of cooling.



## Take a look at these facts:

- A typical three-bedroom, 1,700 square foot Sacramento home that was built before the standards went into effect (1978), costs as much as \$2,700 a year for heating and cooling. The same size Sacramento home today, built in accordance with the latest energy standards, has an annual heating and cooling cost of approximately \$700.
- The amount of electricity used to run one 1977 model refrigerator can power three new models.
- California's population has grown 53 percent since 1975; however, total residential natural gas use has declined 28 percent.



### ENERGY FACTOR

The efficiency rating for water heaters. This number is usually listed on a separate tag beside the yellow *EnergyGuide* label. The higher the Energy Factor, the more efficient the water heater. Gas water heaters range between 0.5 to around 0.7. Electric models range from 0.78 to 0.99.

### FENESTRATION and GLAZING

Transparent or translucent material used in windows or skylights, such as glass or plastic.

### HEATING CAPACITY

The rating of a furnace expressed in BTUs per hour.

### HSPF

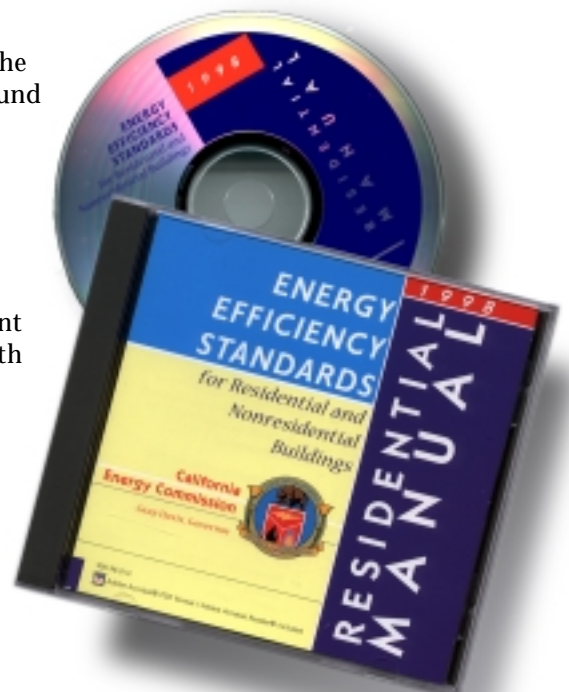
**Heating Seasonal Performance Factor** - The heating efficiency measure used to rate heat pumps. The higher the HSPF the more efficient the heat pump. The HSPF is found on the yellow *EnergyGuide* label attached to a new heat pump. HSPF can range from 6.6 to 9.7.

### LUMEN

The brightness of a light bulb, whether it's an incandescent or compact fluorescent bulb. (Do not confuse lumens with watts. Watts measure the power the bulb uses, while lumens indicate the amount of light given off.)

### MANDATORY MEASURES

The energy efficient features and devices required in all new California homes.





# CALIFORNIA ENERGY COMMISSION



## R-VALUE

Indicates how well a material prevents heat flow. It is used for comparing insulating characteristics of different materials. The higher the R-value of a material, the greater its insulating capabilities. R-38 insulation, for example, is twice as effective at slowing heat transfer as R-19 insulation.

## SEER

**Seasonal Energy Efficiency Ratio** - The cooling efficiency rating used to rate central air conditioners. The higher the SEER, the more efficient the cooling equipment. The SEER is found on the yellow *EnergyGuide* label attached to a new central air conditioner. SEER can range from 9.9 to 14+.

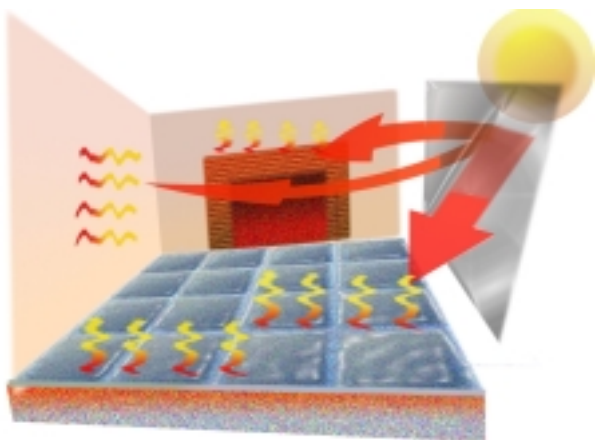


## SOLAR HEAT GAIN COEFFICIENT

**SHGC** - A measure of how well your shade-creating products (such as interior drapes, venetian blinds, roller shades, exterior shade screens, tinted windows, etc.) stop solar heat from entering your home. An SHGC value of .65 means 65% of the heat is getting into your home, and 35% of the heat is being blocked.

## THERMAL MASS

A material used in the construction of your home—like a tile floor or a stone or brick fireplace—that stores heat and later releases it as the temperature drops. Thermal mass helps diminish temperature variations within your home and reduces the need to use heating and cooling equipment. During winter, thermal mass stores heat during the day as a house warms and releases the heat at night as the house cools. During the summer, the mass will absorb excess heat during the day, helping keep indoor temperatures cooler. Thermal mass helps in reducing the operating time of your furnace and air conditioner.



## U-VALUE

A measure of heat flow through a construction assembly (includes insulation, framing and windows). The lower the U-value, the better the assembly insulates. U-values can range from a low of .35 up to a high of .73.



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